

REQUEST FOR RECONSIDERATION

Claims 1-25 remain active in this application.

The claimed invention is directed an acidic oil-in-water type emulsified composition.

Applicants wish to thank Examiner Paden for the helpful and courteous discussion held with their U.S. representative on December 7, 2005. At that time Applicants' U.S. representative argued that the prior art description of a "high molecular polysaccharide" was too broad and insufficient to suggest the use of the claimed water-soluble soybean polysaccharide. The following is intended to expand upon the discussion with the Examiner.

Diglyceride containing compositions have received significant interest in view of the publicized health effects resulting from consumption of such diglyceride compositions. Acidic oil-in-water emulsions such as mayonnaise are well integrated into international cooking cultures and accordingly would provide a convenient vehicle for consumption of such diglyceride compositions. However, oil-in-water type emulsions of diglyceride containing compositions have suffered problems in terms of storage, appearance and gloss. Such instability is also observed under shear experienced during filling of a container. Efforts to provide stable acidic oil-in-water type emulsions of diglyceride containing compositions have not provided entirely satisfactory results. Accordingly, efforts continue to discover acidic oil-in-water type emulsions of diglyceride containing compositions exhibiting desired properties.

The claimed invention addresses this problem by providing an acidic oil-in-water emulsion of a diglyceride containing composition and an egg yoke and a water soluble soybean polysaccharide. Applicants have discovered that water soluble soybean polysaccharide is effective at stabilizing an acidic oil-in-water emulsion, especially under shear stress. Such an emulsified composition is nowhere disclosed or suggested in the cited prior art of record.

The rejections of claims 1-17 and 20-25 under 35 U.S.C. §102(e) over Kawai in view of Nomura and of claims 1-2, 8-15 and 22-25 under 35 U.S.C. §103(a) over Nomura, U.S. 5,160,759 in view of VanDam, U.S. 4,119,564 are respectfully traversed.

None of the cited prior art of record discloses or suggests the use of water soluble soybean polysaccharide in a diglyceride containing acidic oil-on-water emulsified composition.

Each of Kawai et al. and Nomura et al. describe oil-in-water emulsions of diglyceride containing compositions. Nomura et al. describe at column 6, lines 52-65 that a high-molecular polysaccharide such as starch, hydrolysates thereof, dextrin and gum may be used as emulsifying agents and stabilizers. Kawai et al. describe at the end of column 2 through column 3, line 6 the use of synthetic emulsifiers such as sucrose fatty acid ester, sorbitan fatty acid ester, polyglycerin fatty acid ester or polysorbate, protein emulsifiers such as soybean protein, milk protein or wheat protein or separated or decomposed products thereof, or a natural emulsifier such as lecithin or enzymolyzate thereof, a milk product such as milk or phosphate salt. In no instance does the reference disclose or suggest water soluble soybean polysaccharide in the stabilization of an acidic oil-in-water emulsion of a diglyceride containing composition.

Applicants observe an unexpected improvement in emulsion stability and gloss by using water soluble soybean polysaccharide, as claimed. As evidence of an unexpected improvement in emulsion stability using a water soluble soybean polysaccharide as opposed to a high-molecular polysaccharide as described in Nomura et al., Applicants enclose herewith the Declaration of Mr. Naoto Kudou, a named inventor of the above-identified application. Mr. Kudou tested the viscosity of acidic oil-in-water type emulsified compositions containing xanthan gum, cyamopsis gum, carrageenan gum and α starch as

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compared with water soluble soybean polysaccharide as claimed. For the Examiner's convenience, the data from the Kudou Declaration is reproduced as follows:

	Example Invention product	Comparative product	Example Invention product	Comparative product	Comparative product	Comparative product	Comparative product	Comparative product	Example Invention product	Comparative product	Example Invention product	Comparative product	Example Invention product	Comparative product	Example Invention product	Comparative product
	1	1	2	2	3	3-1	3-2	3-3	3-4	3-5	4	4	5	5		
Aqueous phase	15.1	15.1														
Yolk of Ref. Ex. 1			18	18												
Yolk of Ref. Ex. 2				18	18	18	18	18	18	18	18	18	18	18	18	
Water soluble soybean polysaccharide	0.2		0.2		0.2						0.2		0.2			
Xanthan gum						0.2										
Cyamoposis Gum						0.2										
Carrageenan									0.2							
α -starch										0.2						
Refined salt	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
Refined white sugar	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Sodium glutamate	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Mustard powder	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
10% Brewed vinegar	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	
Water	8.9	9.1	6	6.2	6	6.2	6	6	6	6	6	6.2	6	6.2	6	
Oil phase	67	67	67	67	67	67	67	67	67	67	64.3	64.3	61	61	61	
Phytosterol											2.7	2.7	1	1	1	
Phytosterol ester													5	5	5	

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Viscosity prior to application of shear stress (Pa.s)	175	168	185	180	186	182	190	195	189	200	188	187	183	185
Viscosity after application of shear stress (Pa.s)	166	140	180	150	183	152	120	142	120	176	187	151	178	150
Reduction (%) in viscosity due to application of shear stress	95	83	97	83	98	84	63	73	63	88	99	81	97	81
Appearance after application of 500-times pushing pressure	B	C	A	C	A	C	C	C	C	C	A	C	A	C

The data shows a significant decrease in viscosity after shear stress and poor appearance for the emulsions stabilized with high molecular weight polysaccharides as suggested by Nomura et al. The percentage reduction in viscosity ranged from 63-88%.

In contrast, Examples 1, 2 and 3 using water soluble soybean polysaccharide according to the present invention illustrated a loss of viscosity of only 95-98% and had a good appearance. As such, an unexpected improvement in stability is observed using water soluble soybean polysaccharide as claimed. As the prior art neither suggests water soluble soybean polysaccharide nor an improvement in emulsion stability from the use thereof, the claimed invention is clearly neither anticipated nor rendered obvious from this reference and accordingly withdrawal of the rejections under 35 U.S.C. §102(e) and 35 U.S.C. §103(a) is respectfully requested.

Moreover, there is simply no suggestion in either reference of water soluble soybean polysaccharide.

Nowhere in the disclosure of Kawai et al. is there disclosed water soluble soybean polysaccharide. Beginning at column 2, line 63 is a description as follows:

“...a thickened polysaccharide such as xanthan gum, gellan gum, guar gum, tamarind gum, carrageenan, pectin or tragacanth gum; a starch such as potato starch, decomposition product thereof, or processed starch thereof; an emulsifier, for example, synthetic emulsifier such as sucrose fatty acid ester, sorbitan fatty acid ester, polyglycerin fatty acid ester or polysorbate, protein emulsifier such as soybean protein, milk protein or wheat protein, or separated or decomposed product thereof, or a natural emulsifier such as lecithin or enzymolyzate thereof; a milk product such as milk; or a phosphate salt.”

At best the reference describes the use of thickened polysaccharides and gives examples as xanthane gum, gellan gum, guar gum, tamarind gum, carrageenan, pectin or tragacanth gum. None of these materials are water soluble soybean polysaccharide. As the prior art must disclose each of applicants claim limitation in support of a rejection based on obviousness and the cited references fail to disclose or suggest water soluble soybean

polysaccharide, the claimed invention is clearly neither anticipated nor rendered obvious by these references.

To establish a *prima facie* case of obviousness, three **basic** criteria must be met. First there must be some **suggestion or motivation**, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a **reasonable expectation of success**. Finally, the prior art reference (or references when combined) must teach or suggest **all the claim limitations**. (M.P.E.P. 2143) (emphasis added)

Accordingly, the Examiner must 1) find prior art references which teach or suggest all the claim limitations; 2) provide motivation to combine or modify the prior art teachings, found in the references or from knowledge generally available to those of ordinary skill in the art; and 3) show how the prior art provides for a reasonable expectation of success.

The failure to cite a reference which describes water soluble soybean polysaccharide precludes a conclusion that the claimed invention is either anticipated or would have been obvious. A general description of "thickened polysaccharide" is insufficient to describe the claimed element of water soluble soybean polysaccharide.

The disclosure of Nomura et al. similarly does not describe water soluble soybean polysaccharide.

Beginning at column 4, line 53 through column 5, line 2 is a description of emulsion stabilizers as follows:

The emulsifying agent and stabilizer to be used in the emulsion composition according to the present invention may be each conventional one, and examples thereof include hydrophilic emulsifying agents such as sucrose fatty acid ester, sorbitan fatty acid ester and polyglycerin fatty acid ester; proteins, conjugated proteins and decomposition products thereof such as powdered milk, sodium caseinate, decomposition products of casein, soybean protein and decomposition products thereof, wheat protein, milk serum protein, glycoprotein, egg and egg yolk; and high-molecular polysaccharides such as starch and hydrolysate thereof, dextrin and gum. The aqueous phase of the emulsion composition according to the present invention may further contain a seasoning such as salt, sugar, vinegar, fruit juice, organic acid or salt thereof; a flavoring material such as spice oil or flavor and/or a colorant depending upon the object.

Nowhere in this disclosure is a mention of water soluble soybean polysaccharide. The general description of "high-molecular polysaccharides" does not even begin to suggest water soluble soybean polysaccharide. As the prior art must disclose each of applicants claim limitation in support of a rejection based on obviousness and the cited references fail to disclose or suggest water soluble soybean polysaccharide, the claimed invention is clearly neither anticipated nor rendered obvious by these references.

Van Dam has been cited as describing phospholipase A modified egg yolk, but fails to remedy the principle defect of the primary references if failing to describe water soluble soybean polysaccharide.

Withdrawal of the rejections under 35 U.S.C. §102(e) and §103(a) is respectfully requested.

The rejection of claims 1-17 and 20-25 under the judicially created doctrine of obviousness-type double patenting over claims 1-20 of U.S. 6,635,777 in view of Nomura et al., U.S. 5,160,759 is respectfully traversed.

As discussed above, applicants observe an unexpected improvement in emulsion stability using water soluble soybean polysaccharide as claimed and accordingly the claimed invention which recites the use of water soluble soybean polysaccharide is not rendered obvious from the claims of U.S. 6,635,777. Moreover, neither reference claims a water soluble soybean polysaccharide and therefore can not provide a basis for an obviousness rejection as the references fail to teach this claim limitation. Withdrawal of this ground of rejection is respectfully requested.

The provisional rejections of claims 1-8, 11-17 and 20-25 under the judicially created doctrine of obviousness-type double patenting over claims 1-29 of U.S. 10/459,512 and under 35 U.S.C. §103(a) in view of Nomura et al. are respectfully traversed.


U.S. 10/459,512 has been cited as teaching a diglyceride emulsion yet failing to describe water-soluble soybean polysaccharide. Kawai et al. and Nomura et al. have been cited as teaching polysaccharides for enhancing the stability of emulsions. As applicants have already provided evidence of an unexpected improvement in emulsion stability using water soluble soybean polysaccharide as claimed, the claimed invention is clearly not obvious over the claims of application 10/459,512. Moreover, neither reference claims a water soluble soybean polysaccharide and therefore can not provide a basis for an obviousness rejection as the references fail to teach this claim limitation. Furthermore the claims of U.S. '512 are directed to a method of preparing a food composition and not to a composition *per se*. Accordingly withdrawal of this provisional rejection is respectfully requested.

Applicants submit this application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

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